for Oxford, Valentia, Lerwick, Abisko (North Scandinavia), Lindenberg (Berlin), and Arosa (southeastern Switzerland), slight corrections being applied to get more satisfactory values than those in the earlier paper. (See Abstract 1532, 1926.) (1) The annual variation with a maximum in April and a minimum in October is confirmed. (2) The departure of the amount of $O_3$ from the mean is found to be greater for days of high H than for days of low H, while the effect is more marked on days on high magnetic character. (3) The connection found with sunspots in 1925 broke down in 1926, and more observations are required, of which those from Montezuma will be most useful. (4) $O_3$ content is low for anticyclones and high for depressions, while for the latter the value is higher in the rear than in the front, as if the origin of the air affected the amount of $O_3$. An even closer relation exists for pressure in the stratosphere than for that at the surface. (5) $O_3$ may exist at a level such as 10 to 20 kilometers and not only in the higher levels. The lower layer is probably connected with anticyclones and depressions, and the upper layer with solar and magnetic conditions and probably also with the annual variations.—*R. S. R.*

## METEOROLOGICAL SUMMARY FOR SOUTHERN SOUTH AMERICA, JULY, 1927

By J. BUSTOS NAVARRETE, Director

[Observatorio del Salto, Santiago, Chile]

During July the atmospheric circulation showed relatively moderate activity; in general, rain did not fall very frequently and there was a marked deficiency in the amounts received.

The most important cyclonic centers, accompanied by fair, cold weather, were charted through the following periods: 1st to 5th, 6th to 11th, 15th to 18th, and 22d to 31st. The first of these made itself felt in all of Chile and in a large part of Argentina.

The depressions most productive of unsettled weather and rain were those of the 1st–2d, crossing the extreme southern region; the 2d, lying off Isla Mocha; the 8th–15th, bringing heavy storms of rain and wind over a considerable area; the 18th–22d; and the 26th–31st, causing dense fog in all of the land.

Rains fell over the region extending from the Provinces of Atacama and Coquimbo on the north to Magellanes on the south. At Santiago the precipitation for the month was 112.2 mm. (4.42 inches), while at Valdivia it was 282.7 mm. (11.13 inches).—*Transl.—W. W. R.*

## METEOROLOGICAL SUMMARY FOR BRAZIL, JULY, 1927

By J. DE SAMPAIO FERRAZ, Director

[Directoria de Meteorologia, Rio de Janeiro]

The secondary circulation continued active in this month with four migratory anticyclones and frequent changes of pressures. Temperature was particularly low in southern Brazil, with general frosts and high winds in the first and last decades.

Rainfall was plentiful in the north and scarce in the center and south. Good harvest of cotton, cane, cocoa, and coffee.

Rio's pressure was 3.7° millibars above normal and temperature was 0.7° C. under normal. Weather was generally fair in the capital with only one occurrence of high wind, from SSW., on the 24th.

# BIBLIOGRAPHY

C. FITZHUGH TALMAN, in Charge of Library

## RECENT ADDITIONS

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Eastbay communities have world's finest living and working climate; chart shows ideal distribution of sunshine and rainfall. p. 20–21, 178. chart. port. 31 cm. (Oakland tribune. Year book. 1927.)